Spock — Computer Log Update: Global Parameter Reuse

Log entry.

Further analysis suggests that global parameter sharing may be particularly advantageous when contextual information is weak.

Where individual layers receive low-information extrinsic context, that context may be insufficient to select a highly specialized layer-specific mapping.

A shared global parameter space provides an alternative:

$$\Theta = \{\theta_1, \theta_2, \ldots, \theta_M\},$$

with each layer selecting useful parameter fragments according to its available context:

$$y_n = L(C_n, \Theta)x_n.$$

Thus, several layers possessing weak contextual signals may independently access a common computational repertoire.

This permits parameter reuse while avoiding the requirement that every weak context state possess a complete specialized mapping.

An important distinction emerges:

> **Strong context can select specialized computational regions. Weak context can select from a shared computational repertoire.**

The latter may be particularly useful in memory-constrained systems, where maintaining independent parameter spaces for every layer would be inefficient.

The principal unresolved issue remains whether independently selected parameter fragments retain sufficient computational relatedness to produce a coherent transformation.

Conclusion: Global parameter sharing may provide a useful computational reservoir for layers whose extrinsic context is informative, but not sufficiently informative for strong specialization.

End log.